Why Indeed Did the WTC Buildings Collapse?

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FOREWORD

"We are apt to shut our eyes against a painful truth… Is this the part of wise men, engaged in a great and arduous struggle for liberty? Are we disposed to be of the number of those, who having eyes, see not, and having ears, hear not..?

For my part, whatever anguish of spirit it might cost, I am willing to know the whole truth; to know..it — now."

- Patrick Henry, 1775.

"Neither let us be slandered from our duty by false accusations against us, nor frightened from it by menaces of destruction to the Government nor of dungeons to ourselves. Let us have faith that right makes might, and in that faith, let us, to the end, dare to do our duty as we understand it."

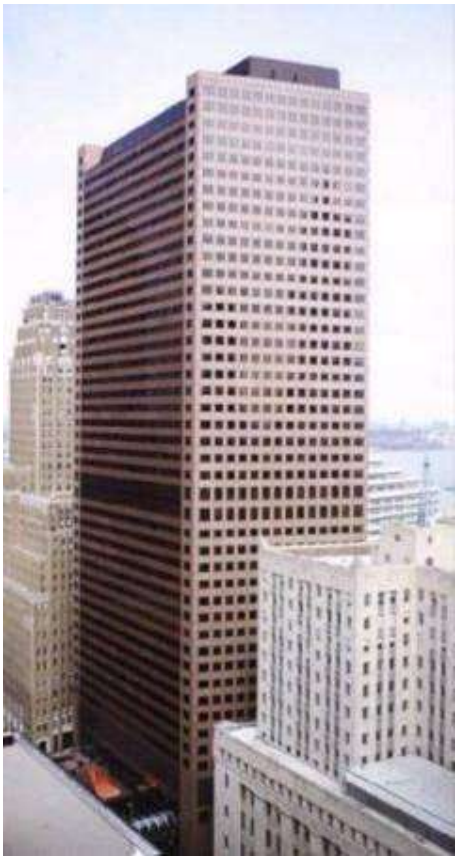
- Abraham Lincoln, February 27th, 1860

Video clip of an interview with Prof. Jones can be seen here:
http://kutv.com/topstories/local_story_314234334.html

ABSTRACT

In writing this paper, I call for a serious investigation of the hypothesis that WTC 7 and the Twin Towers were brought down, not just by damage and fires, but through the use of pre-positioned explosives. I consider the official FEMA, NIST, and 9-11 Commission reports that fires plus damage alone caused complete collapses of all three buildings. And I present evidence for the explosive-demolition hypothesis, which is suggested by the available data, testable and falsifiable, and yet has not been analyzed in any of the reports funded by the US government.

Let's start with the collapse of the 47-story WTC 7, which was never hit by a jet. I ask you to take a minute to look at the collapse of this building as a basis for discussion.



WTC 7: 47 – Story, steel-frame building..

WTC 7 on afternoon of 9-11-01. WTC 7 is the tall

sky-scraper in the back-ground, right. Seen from WTC 1 area.

WTC 7 collapsed completely, onto its own footprint

Now that you have seen the still photographs, it is important to the discussion which follows for you to observe video clips of the collapse of this building, so go to:

http://911research.wtc7.net/talks/wtc/videos.html Click on the three photos at the top of this web-site page in order to see the videos of the collapse of WTC 7. It helps to have sound.

Then consider a video close-up of the same building (SW corner) as its demise begins:

http://st12.startlogic.com/~xenonpup/Flashes/squibs_along_southwest_corner.htm

What did you observe?

Symmetry: did the building collapse straight down (nearly symmetrically) — or did it topple over?

Speed: How fast did the building fall? (Students and I measure less than 6.6 seconds; time it!)

Smoke/debris-jets: Did you observe puffs of smoke/debris coming out of the building? Please note for yourself the sequence and fast timing of observed puffs or "squibs." Note that reference to web pages is used in this paper due largely to the importance of viewing motion picture clips, thus enhancing consideration of the laws of motion and physics generally. High-quality photographs showing details of the collapses of WTC 7 and the WTC Towers can be found in books (Hufschmid, 2002; Paul and Hoffman, 2004), magazines (Hoffman, 2005; Baker, 2005) and at http://911research.wtc7.net/wtc/evidence/photos/collapses.html.

My reasons for advancing the explosive-demolition hypothesis while challenging the "official" fire-caused collapse hypothesis are these:

1. As you observed, WTC 7 collapsed rapidly and symmetrically — even though fires were randomly scattered in the building. WTC 7 fell about seven hours after the Towers collapsed, even though no major persistent fires were visible. There were twenty-four huge steel support columns inside WTC 7 as well as huge trusses, arranged asymmetrically, along with approximately 57 perimeter columns. (FEMA, 2002, chapter 5.) A symmetrical collapse, as observed, evidently requires the simultaneous "pulling" of most or all of the support columns. The Second Law of Thermodynamics implies that the likelihood of complete and symmetrical collapse due to random fires as in the "official" theory is small, since asymmetrical failure is so much more likely. On the other hand, a major goal of controlled demolition using explosives is the complete and symmetrical collapse of buildings.

Concluding remarks in the FEMA report on the WTC 7 collapse lend support to my arguments:

The specifics of the fires in WTC 7 and how they caused the building to collapse ["official theory"] remain unknown at this time. Although the total diesel fuel on the premises contained massive potential energy, the best hypothesis [fire/damage-caused collapse] has only a low probability of occurrence. Further research, investigation, and analyses are needed to resolve this issue. (FEMA, 2002, chapter 5; emphasis added.)

That is precisely my point: further investigation and analyses are needed, including consideration of the controlled-demolition hypothesis which is neglected in all of the government reports (FEMA, NIST and 9-11 Commission reports). Note that the 9-11 Commission report does not even mention the collapse of WTC 7 on 9-11-01. (Commission, 2004) This is a striking omission of data highly relevant to the question of what really happened on 9-11.

2. A New York Times article entitled "Engineers are baffled over the collapse of 7 WTC; Steel members have been partly evaporated," provides relevant data.

Experts said no building like it [WTC7], a modern, steel-reinforced high-rise, had ever collapsed because of an uncontrolled fire. (Glanz, 2001; emphasis added.)

That's correct — no such steel-beam building had ever before (or since) completely collapsed due to fires! However, such complete, symmetrical collapses in steel-frame buildings have indeed occurred many times before — all of them due to pre-positioned explosives in a procedure called "implosion" or controlled demolition. What a surprise, then, for such an occurrence in downtown Manhattan — three skyscrapers completely collapsed on the same day, September 11, 2001.

Engineers have been trying to figure out exactly what happened and whether they should be worried about other buildings like it around the country… Most of the other buildings in the [area] stood despite suffering damage of all kinds, including fire… 'Fire and the structural damage …would not explain steel members in the debris pile that appear to have been partly evaporated', Dr. [Jonathan] Barnett said. (Glanz, 2001; emphasis added.)

The observed "partly evaporated" steel members is particularly upsetting to the official theory, since fires involving paper, office materials, even diesel fuel, cannot generate temperatures anywhere near the 5,000+ oF needed to "evaporate" steel. However, thermite, RDX and other commonly-used explosives can readily slice through steel (thus cutting the support columns simultaneously

in an explosive demolition) and reach the required temperatures. (It is possible that some other chemical reactions were involved which might proceed at lesser temperatures.) This mystery needs to be explored — but is not mentioned in the "official" 9-11 Commission or NIST reports.

3. There are several published observations of molten metal in the basements of all three buildings, WTC 1, 2 ("Twin Towers") and 7. For example, Dr. Keith Eaton toured Ground Zero and stated in The Structural Engineer,

'They showed us many fascinating slides' [Eaton] continued, 'ranging from molten metal which was still red hot weeks after the event, to 4-inch thick steel plates sheared and bent in the disaster'. (Structural Engineer, September 3, 2002, p. 6; emphasis added.)

The observation of molten metal at Ground Zero was emphasized publicly by Leslie Robertson, the structural engineer responsible for the design of the World Trade Center Towers, who reported that "As of 21 days after the attack, the fires were still burning and molten steel was still running." (Williams, 2001, p. 3; emphasis added.)

Sarah Atlas was part of New Jersey's Task Force One Urban Search and Rescue and was one of the first on the scene at Ground Zero with her canine partner Anna. She reported in Penn Arts and Sciences, summer 2002,

'Nobody's going to be alive.' Fires burned and molten steel flowed in the pile of ruins still settling beneath her feet. (Penn, 2002; emphasis added.)

Dr. Allison Geyh was one of a team of public health investigators from Johns Hopkins who visited the WTC site after 9-11. She reported in the Late Fall 2001 issue of Magazine of Johns Hopkins Public Health, "In some pockets now being uncovered they are finding molten steel." Further information on the subject is available at http://globalresearch.ca.myforums.net/viewtopic.php?p=11663.

Thus, molten metal was repeatedly observed and formally reported in the rubble piles of the WTC Towers and WTC 7, metal that looked like molten steel. However, scientific analysis, using for example X-ray fluorescence, would be needed to ascertain the actual composition of the molten metal.

I maintain that these published observations are consistent with the use of the high-temperature thermite reaction, used to cut or demolish steel. Thermite is a mixture of iron oxide and aluminum powder. The end products of the thermite reaction are aluminum oxide and molten iron. So the thermite reaction generates molten iron directly, and is hot enough to melt and even evaporate steel which it contacts while reacting. Use of sulfur in conjunction with the thermite should accelerate the destructive effect on steel, and sulfidation of structural steel was indeed observed in some of the few recovered members from the WTC rubble. (See http://www.911research.wtc7.net/wtc/evidence/metallurgy/index.html.) On

the other hand, falling buildings (absent explosives) have insufficient directed energy to result in melting of large quantities of metal. The government reports admit that the building fires were insufficient to melt steel beams — then where did the molten metal come from? Metals expert Dr. Frank Gayle (working with NIST) stated:

Your gut reaction would be the jet fuel is what made the fire so very intense, a lot of people figured that's what melted the steel. Indeed it did not, the steel did not melt. (Field, 2005; emphasis added.)

None of the official reports tackles this mystery. Yet this is evidently a significant clue to what caused the Towers and WTC 7 to collapse. So I would very much like to see an analysis of the elemental composition of the metal, and could do this myself if a small sample were made available according to scientific courtesy. Any reader who knows of chemical analyses or even photographs of this molten metal found below the rubble piles of WTC 1, 2 and 7 is invited to speak out and contact the author. This could lead to an experiment crucis.

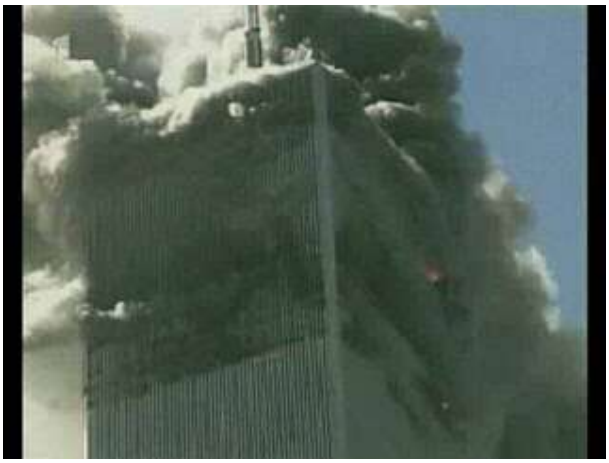
4. Horizontal puffs of smoke and debris are observed emerging from WTC-7 on upper floors, in regular sequence, just as the building starts to collapse. (The reader may wish to view the close-up video clip again.) The upper floors have not moved relative to one another yet, as one can verify from the videos. In addition, the timing between the puffs is less than 0.2 seconds so air-expulsion due to collapsing floors is excluded. Free-fall time for a floor to fall down to the next floor is significantly longer than 0.2 seconds: the equation for free fall, $y = \frac{1}{2} gt^2$, yields a little over 0.6 seconds, as this is near the initiation of the collapse.

However, the presence of such "squibs" proceeding up the side of the building is common when pre-positioned explosives are used, as can be observed at http://www.implosionworld.com/cinema.html. The same site shows that rapid timing between explosive squibs is also common. (It is instructive to view several of the implosion videos at this web site.) Thus, squibs as observed during the collapse of WTC 7 going up the side of the building in rapid sequence provide additional significant evidence for the use of pre-placed explosives. Regarding this highly-secure building, a NY Times article entitled "Secretive C.I.A. Site in New York was Destroyed on Sept. 11," provides an intriguing puzzle piece:

The C.I.A.'s undercover New York station was in the 47-story building at 7 World Trade Center… All of the agency's employees at the site were safely evacuated… The intelligence agency's employees were able to watch from their office windows while the twin towers burned just before they evacuated their own building. (Risen, 2001)

5. The official FEMA 9-11 report admits a striking anomaly regarding the North Tower collapse:

Review of videotape recordings of the collapse taken from various angles indicates that the transmission tower on top of the structure began to move downward and laterally slightly before movement was evident at the exterior wall. This suggests that collapse began with one or more failures in the central core area of the building. (FEMA, 2002, chapter 2; emphasis added.)



North Tower showing antenna (top) at beginning of collapse.

Yes, we can see for ourselves that the antenna drops first from videos of the North Tower collapse. (See http://911research.wtc7.net/wtc/evidence/videos/wtc1_close_frames.html; also http://home.comcast.net/~skydrifter/collapse.htm.) A NY Times article also notes this behavior:

The building stood for more than an hour and a half. Videos of the north tower's collapse appear to show that its television antenna began to drop a fraction of a second before the rest of the building. The observations suggest that the building's steel core somehow gave way first… (Glanz and Lipton, 2002; emphasis added)

But how? What caused the 47 enormous steel core columns of this building (which supported the antenna) to give way nearly simultaneously? That mystery was raised by the FEMA report (FEMA, 2002, chapter 2) and the New York Times (Glanz and Lipton, 2002) yet not solved in any official report (FEMA, 2002; Commission, 2004; NIST, 2005). The odd behavior was not even

mentioned in the final NIST report (NIST, 2005), but some of us have not forgotten.

Could random fires burning office materials in the building account for a near-simultaneous "pulling" of these core supports? Certainly such an event would have exceedingly low probability. Again, use of pre-positioned explosives to cut the core columns first (standard demolition practice) provides a simple yet elegant explanation for the observation, satisfying the "Occam's razor" test (Jones, 2005).

6. Multiple loud explosions in rapid sequence were heard and reported by numerous observers in and near the WTC Towers, consistent with explosive demolition. Firemen and others described flashes and explosions in upper floors near where the plane entered, and in lower floors of WTC 2 just prior to its collapse, far below the region where the plane had struck the tower (Dwyer, 2005). For instance, at the start of the collapse of the South Tower a Fox News anchor reported:

There is an explosion at the base of the building… white smoke from the bottom… something happened at the base of the building! Then another explosion." (De Grand Pre, 2002, emphasis added.)

Firefighter Edward Cachia independently reported:

[We] thought there was like an internal detonation, explosives, because it went in succession, boom, boom, boom, boom, and then the tower came down…It actually gave at a lower floor, not the floor where the plane hit. (Dwyer, 2005; emphasis added.)

And assistant fire commissioner Stephen Gregory provides additional insights:

When I looked in the direction of the Trade Center before it came down, before No. 2 came down, ..I saw low-level flashes. In my conversation with Lieutenant Evangelista, never mentioning this to him, he questioned me and asked me if I saw low-level flashes in front of the building, and I agreed with him because I thought — at that time I didn't know what it was. I mean, it could have been as a result of the building collapsing, things exploding, but I saw a flash flash flash and then it looked like the building came down.

Q. Was that on the lower level of the building or up where the fire was?

A. No, the lower level of the building. You know like when they demolish a building, how when they blow up a building, when it falls down? That's what I thought I saw. And I didn't broach the topic to him, but he asked me. He said I don't know if I'm crazy, but I just wanted to ask you because you were standing right next to me… He said did you see any flashes? I said, yes, well, I thought it was just me. He said no, I saw them, too. (Dwyer, 2005, Assistant Commissioner Stephen Gregory FDNY WCT2 File No. 91 10008; emphasis added.)

It is highly unlikely that jet fuel was present to generate such explosions especially on lower floors, and long after the planes hit the buildings. Dr. Shyam Sunder, Lead Investigator for NIST stated: "The jet fuel probably burned out in less than 10 minutes." (Field, 2005) On the other hand, pre-positioned explosives provide a plausible and simple explanation for the observations, satisfying Occam's razor (Jones, 2005). Thus, it cannot be said that "no evidence" can be found for the use of explosives. This serious matter needs to be treated as a plausible scientific hypothesis and thoroughly investigated.

7. The horizontal ejection of steel beams for hundreds of feet and the pulverization of concrete to flour-like powder, observed clearly in the collapses of the WTC towers, provides further evidence for the use of explosives — as well-explained in http://911research.wtc7.net/talks/towers/index.html. (See also, Griffin, 2004, chapter 2.)

North Tower during top-down collapse.

Notice mysterious squibs far below pulverization region.

Unlike WTC7, the twin towers appear to have been exploded “top-down” rather than proceeding from the bottom — which is unusual for controlled demolition but clearly possible, depending on the order in which explosives are detonated. That is, explosives may have been placed on higher floors of the towers and exploded via radio signals so as to have early explosions near the region where the plane entered the tower. Certainly this hypothesis ought to be seriously considered in an independent investigation using all available data.

8. I totally agree with the urgent yet reasoned assessment of expert fire-protection engineers, as boldly editorialized in the journal Fire Engineering:

Respected members of the fire protection engineering community are beginning to raise red flags, and a resonating [result] has emerged: The structural damage from the planes and the explosive ignition of jet fuel in themselves were not enough to bring down the towers.

Fire Engineering has good reason to believe that the “official investigation” blessed by FEMA… is a half-baked farce that may already have been commandeered by political forces whose primary interests, to put it mildly, lie far afield of full disclosure. Except for the marginal benefit obtained from a three-day, visual walk-through of evidence sites conducted by ASCE investigation committee members- described by one close source as a “tourist trip”-no one’s checking the evidence for anything.

Some citizens are taking to the streets to protest the investigation sellout. Sally Regenhard, for one, wants to know why and how the building fell as it did upon her unfortunate son Christian, an FDNY probationary firefighter. And so do we.

Clearly, there are burning questions that need answers. Based on the incident’s magnitude alone, a full-throttle, fully resourced, forensic investigation is imperative. More important, from a moral standpoint, [are considerations] for the… present and future generations… (Manning, 2002; emphasis added).

9. The occurrence of nearly symmetrical, straight-down and complete collapses of the WTC 7 and the Towers is particularly upsetting to the “official” theory that random fires plus damage caused all these collapses. Even with explosives, achieving such results requires a great deal of pre-planning and expertise.

The main challenge in bringing a building down is controlling which way it falls. Ideally, a blasting crew will be able to tumble the building over on one side, into a parking lot or other open area. This sort of blast is the easiest to execute [favored by the Law of Increasing Entropy]. Tipping a building over is something like felling a tree. To topple the building to the north, the blasters detonate explosives on the north side of the building first…

Sometimes, though, a building is surrounded by structures that must be preserved. In this case, the blasters proceed with a true implosion, demolishing the building so that it collapses straight down into its own footprint (the total area at the base of the building). This feat requires such skill that only a handful of demolition companies in the world will attempt it. [Again, consistent with the Second Law of Thermodynamics.]

Blasters approach each project a little differently… [A good] option is to detonate the columns at the center of the building before the other columns so that the building's sides fall inward. (Harris, 2000; emphasis added.)

Careful observation of the collapse of WTC 7 (video clips above) demonstrates a downward "kink" near the center of the building first, suggesting "pulling" of the support columns, then the building's sides pull inward such that the building "collapses straight down into its own footprint" (Harris, 2000). FEMA admitted that WTC 7 collapsed onto a well-confined footprint:

The collapse of WTC 7 had a small debris field as the facade was pulled downward, suggesting an internal failure and implosion… The average debris field radius was approximately 70 feet. (FEMA, 2002, chapter 5.)

Evidently we agree that this was a beautifully done implosion in the collapse of WTC 7, and yet:

This feat requires such skill that only a handful of demolition companies in the world will attempt it. (Harris, 2000; emphasis added.)

Consider: Why would terrorists undertake straight-down collapses of WTC7 and the Towers, when "toppling-over" falls would require much less work and would do much more damage in downtown Manhattan? And where would they obtain the necessary skills and access to the buildings for a symmetrical implosion anyway? These questions suggest the need for further investigation.

One of the people a thorough investigation should question would be demolition expert Mark Loizeaux, president of Controlled Demolition, Inc. Speaking of the way the WTC buildings came down, he said in an interview: "If I were to bring the towers down, I would put explosives in the basement to get the weight of the building to help collapse the structure." (Bollyn, 2002; emphasis added.)

Just right — "explosives in the basement" agrees with eyewitness reports of explosions down low in the buildings (point 6 above). Also, this would be the way to effectively sever the support columns, consistent with both the initial drop of the communication tower (WTC Tower 1) and the "kink" in the middle of WTC 7 as its collapse began. Yes, and as president of Controlled Demolition, Inc., Mr. Loizeaux would know the "handful of demolition companies in the world [that] will attempt" a symmetrical controlled demolition. (Harris, 2000) His company is certainly one of these and was hired to do the rapid clean-up work following the building collapses.

If you still haven't looked at the rapid symmetrical collapse of WTC7 for yourself, why not do so now? Watch for the initial "kink" or drop in the middle, and for the "squibs" blowing in sequence up the side of the building, and notice the symmetrical, straight-down collapse — all so common in controlled demolitions. See for yourself at: http://911research.wtc7.net/talks/wtc/videos.html. A great deal of further information is presented from a serious scientific point-of-view at this site (http://911research.wtc7.net/).

10. I presented my objections to the "official" theory at a seminar at BYU on September 22, 2005, to about sixty people. I also showed evidence and scientific arguments for the explosive demolition theory. In attendance were faculty from Physics, Mechanical Engineering, Civil Engineering, Electrical Engineering, Psychology, Geology, and Mathematics — and perhaps other departments as I did not recognize all of the people present. A local university and college were represented (BYU and Utah Valley State College).

The discussion was vigorous and lasted nearly two hours. It ended only when a university class needed the room. After presenting the material summarized here, including actually looking at and discussing the collapses of WTC 7 and the Towers, all except one attendee agreed (by hand-vote) that further investigation of the WTC collapses was called for. The next day, the dissenting professor said he had further thought about it and now agreed that more investigation was needed. He joined the others in hoping that the 6,899 photographs and 6,977 segments of video footage held by NIST plus others held by the FBI would be released for independent scrutiny; photos largely from private photographers (NIST, 2005, p. 81). We call for the release of these data to a cross-disciplinary, preferably international team of scientists and engineers.

11. One attendee to the BYU Seminar on 9-11 anomalies suggested I review the paper by Bazant and Zhou, which I did. Quoting:

The 110-story towers of the World Trade Center were designed to withstand as a whole the forces caused by a horizontal impact of a large commercial aircraft. So why did a total collapse occur? (Bazant and Zhou, 2002, p. 2.)

Correct — jet collisions did not cause collapses — we can agree on that. MIT's Thomas Eager also concurs "because the number of columns lost on the initial impact was not large and the loads were shifted to remaining columns in this highly redundant structure" (Eager and Musso, 2001).

We continue with Bazant & Zhou:

The conflagration, caused by the aircraft fuel spilled into the structure, causes the steel of the columns to be exposed to sustained temperatures apparently exceeding 800oC… (Bazant and Zhou, 2002, p. 2.)

But here we note from the recent NIST report that: "The initial jet fuel fires themselves lasted at most a few minutes" and office material fires would burn out within about 20 minutes in a given location. (NIST, 2005; p. 179, emphasis added.) Certainly jet fuel burning was not enough to raise steel to sustained temperatures above 800oC. But we continue:

Once more than half of the columns in the critical floor.. suffer buckling (stage 3), the weight of the upper part of the structure above this floor can no longer be supported, and so the upper part starts falling down onto the lower part below…"(Bazant and Zhou, 2002, p. 2.)

Bazant & Zhou do not explain how "more than half of the columns in the critical floor [can] suffer buckling" at the same time to precipitate the complete and nearly symmetrical collapse observed. There were 47 huge steel core columns in each Tower, and 24 such support columns in WTC 7 (NIST 2005; NISTb, 2005).

The WTC towers were solidly constructed with 47 steel core columns and 240 perimeter steel beams. 287 steel-columns total. Many doubt that random fires/damage could cause them to collapse straight down (official theory), and suspect explosives.

Steel-frame: Huge core (left), enormous Heat Sink. Notice workers standing on floor pan which is firmly attached to the interconnected core columns.

They do NOT explain how steel-column temperatures above 800oC were achieved near-simultaneously due to burning office materials. NIST notes that office materials in an area burn for about 15-20 minutes, then are consumed away (NIST, 2005, pp. 117, 179). This is evidently not long enough to raise steel column temperatures above 800oC as required in the Bazant & Zhou model, given the enormous heat sinks of the structures. And to have three buildings completely collapse due to this unlikely mechanism on the same day strains credulity. Moreover, the Final NIST report on the Towers admits:

Of the more than 170 areas examined on 16 perimeter column panels, only three columns had evidence that the steel reached temperatures above 250ºC… Only two core column specimens had sufficient paint remaining to make such an analysis, and their temperatures did not reach 250 ºC. … Using metallographic analysis, NIST determined that there was no evidence that any of the samples had reached temperatures above 600 ºC. (NIST, 2005, pp. 176-177; emphasis added.)

As for WTC 7, Bazant & Zhou say little but mention in a separate "addendum" that burning natural gas might have been a source of the needed heat (Bazant and Zhou, March 2002, p. 370). The FEMA report (FEMA, 2002) addresses this issue:

Early news reports had indicated that a high pressure, 24-inch gas main was located in the vicinity of the building [WTC 7]; however, this proved not to be true." (FEMA, 2002, chapter 5; emphasis added)

12. I have read through the hundreds of pages of the Final NIST report on the collapses of the WTC Towers. (NIST, 2005) It is interesting to note that NIST "decoupled" and delayed their final report on WTC 7, which is overdue as of this writing (NIST, 2005; NISTb, 2005) I agree with some of the NIST report; for example:

Both WTC 1 and WTC 2 were stable after the aircraft impact, standing for 102 min and 56 min, respectively. The global analyses with structural impact damage showed that both towers had considerable reserve capacity. This was confirmed by analysis of the post-impact vibration of WTC 2… where the damaged tower oscillated at a period nearly equal to the first mode period calculated for the undamaged structure. (NIST, 2005, p. 144; emphasis added.)

At any given location, the duration of [air, not steel] temperatures near 1,000oC was about 15 min to 20 min. The rest of the time, the calculated temperatures were near 500oC or below." (NIST, 2005, p. 127, emphasis added.)

NIST contracted with Underwriters Laboratories, Inc. to conduct tests to obtain information on the fire endurance of trusses like those in the WTC towers… All four test specimens sustained the maximum design load for approximately 2 hours without collapsing." (NIST, 2005, p. 140, emphasis added.)

However, I along with others challenge NIST's collapse theory. NIST maintains that all three building collapses were fire-initiated despite the observations above,

particularly the fact that fire endurance tests with actual models did not result in collapse. In a paper by fire-engineering experts in the UK, we find:

The basis of NIST's collapse theory is… column behaviour in fire… However, we believe that a considerable difference in downward displace between the [47] core and [240] perimeter columns, much greater than the 300 mm proposed, is required for the collapse theory to hold true… [Our] lower reliance on passive fire protection is in contrast to the NIST work where the amount of fire protection on the truss elements is believed to be a significant factor in defining the time to collapse… The [proposed effect] is swamped by thermal expansion … Thermal expansion and the response of the whole frame to this effect has NOT been described as yet [by NIST]. (Lane and Lamont, 2005.)

I agree with these pointed objections, particularly that the "response of the whole frame" of each building should be considered, especially heat transport to the whole frame from localized fires, and that the "core columns cannot pull the exterior columns in via the floor." (Lane and Lamont, 2005)

The computerized models of the Towers in the NIST study, which incorporate many features of the buildings and the fires on 9-11-01, are less than convincing. The Final report states:

The Investigation Team then defined three cases for each building by combining the middle, less severe, and more severe values of the influential variables. Upon a preliminary examination of the middle cases, it became clear that the towers would likely remain standing. The less severe cases were discarded after the aircraft impact results were compared to observed events. The middle cases (which became Case A for WTC 1 and Case C for WTC 2) were discarded after the structural response analysis of major subsystems were compared to observed events. (NIST, 2005, p. 142; emphasis added.)

The NIST report makes for interesting reading. The less severe cases based on empirical data were discarded because they did not result in building collapse. But 'we must save the hypothesis,' so more severe cases were tried and the simulations tweaked, as we read in the NIST report:

The more severe case (which became Case B for WTC 1 and Case D for WTC 2) was used for the global analysis of each tower. Complete sets of simulations were then performed for Cases B and D. To the extent that the simulations deviated from the photographic evidence or eyewitness reports [e.g., complete collapse occurred], the investigators adjusted the input, but only within the range of physical reality. Thus, for instance,…the pulling forces on the perimeter columns by the sagging floors were adjusted… (NIST, 2005, p. 142; emphasis added.)

The primary role of the floors in the collapse of the towers was to provide inward pull forces that induced inward bowing of perimeter columns. (NIST, 2005, p. 180; emphasis added.)

How fun to tweak the model like that, until the building collapses — until one gets the desired result. But the end result of such tweaked computer hypotheticals is not compelling, sorry gentlemen. Notice that the "the pulling forces on the perimeter columns by the sagging floors were adjusted" (NIST, 2005, p. 142; emphasis added) to get the perimeter columns to yield sufficiently — one suspects these were "adjusted" by hand quite a bit — even though the UK experts complained that "the core columns cannot pull the exterior [i.e., perimeter] columns in via the floor." (Lane and Lamont, 2005; emphasis added.)

I also agree with Kevin Ryan's objections regarding the NIST study. Kevin Ryan, at the time a manager at Underwriters Laboratories (UL), makes a point of the non-collapse of actual WTC-based models in his letter to Frank Gayle of NIST:

As I'm sure you know, the company I work for certified the steel components used in the construction of the WTC buildings. In requesting information from both our CEO and Fire Protection business manager last year… they suggested we all be patient and understand that UL was working with your team… I'm aware of UL's attempts to help, including performing tests on models of the floor assemblies. But the results of these tests… indicate that the buildings should have easily withstood the thermal stress caused by… burning [jet fuel, paper, etc.]. (Ryan, 2004)

That models of WTC trusses at Underwriter Laboratories (UL) subjected to fires did NOT fail is also admitted in the final NIST report:

NIST contracted with Underwriters Laboratories, Inc. to conduct tests to obtain information on the fire endurance of trusses like those in the WTC towers…. All four test specimens sustained the maximum design load for approximately 2 hours without collapsing… The Investigation Team was cautious about using these results directly in the formulation of collapse hypotheses. In addition to the scaling issues raised by the test results, the fires in the towers on September 11, and the resulting exposure of the floor systems, were substantially different from the conditions in the test furnaces. Nonetheless, the [empirical test] results established that this type of assembly was capable of sustaining a large gravity load, without collapsing, for a substantial period of time relative to the duration of the fires in any given location on September 11. (NIST, 2005, p. 141; emphasis added.)

So how does the NIST team justify the WTC collapses, when actual models fail to collapse and there are zero examples of fire-caused high-rise collapses? Easy, NIST concocted computer-generated hypotheticals for very "severe" cases, called cases B and D (NIST, 2005, pp. 124-138). Of course, the details are rather hidden to us. And they omit consideration of the complete, rapid and symmetrical nature of the collapses.

Indeed, NIST makes the startling admission in a footnote on page 80 of their Final Report:

The focus of the Investigation was on the sequence of events from the instant of aircraft impact to the initiation of collapse for each tower. For brevity in this report, this sequence is referred to as the "probable collapse sequence," although it does not actually include the structural behavior of the tower after the conditions for collapse initiation were reached…(NIST, 2005, p. 80, fn. 12; emphasis added.)

Again, on page 142, NIST admits that their computer simulation only proceeds until the building is "poised for collapse", thus ignoring any data from that time on.

The results were a simulation of the structural deterioration of each tower from the time of aircraft impact to the time at which the building became unstable, i.e., was poised for collapse. …(NIST, 2005, p. 142; emphasis added.)

What about the subsequent complete, rapid and symmetrical collapse of the buildings? What about the observed squibs? What about the antenna dropping first in the North Tower? What about the molten metal observed in the basement areas in large pools in both Towers and WTC 7 as well? Never mind all that: NIST did not discuss at all any data after the buildings were "poised for collapse." Well, some of us want to look at ALL the data, without computer simulations that are "adjusted," perhaps to make them fit the desired outcome.

13. Kevin Ryan, the whistleblower from Underwriters Laboratories, did his own statistical analysis in a recent letter regarding the NIST report, arguing that probabilities of collapse-initiation needed to be calculated (Ryan, 2005). NIST nowhere provides such a likelihood analysis for their non-explosive collapse model. Ryan's analysis is that the probability that fires and damage (the "official theory") could cause the Towers complete collapse is less than one in a trillion, and the probability is much less still when the complete collapse of WTC7 is included (Ryan, 2005). Nor does NIST (or FEMA or the 9-11 Commission) even mention the molten metals found in the basements of all three buildings (WTC 1, 2 and 7).

So where does that leave us? I strongly agree with Kevin Ryan,

This ["official"] story just does not add up…. That fact should be of great concern to all Americans…. There is no question that the events of 9/11 are the emotional driving force behind the War on Terror. And the issue of the WTC collapse is at the crux of the story of 9/11. (Ryan, 2004; emphasis added.)

14. The NIST team fairly admits that their report "does not actually include the structural behavior of the tower after the conditions for collapse initiation were reached." (NIST, 2005, p. 80, fn. 1; emphasis added.) Quite a confession, since much of the external evidence for explosive demolition typically comes after collapse initiation, as seen in cases of acknowledged controlled demolition. (Harris, 2000.)

The rapid fall of the Towers and WTC7 has been analyzed by several engineers/scientists (http://911research.wtc7.net/wtc/analysis/proofs/speed.html; Griffin, 2004, chapter 2). The roof of WTC 7 (students and I are observing the southwest corner) falls to earth in less than 6.6 seconds, while an object dropped from the roof would hit the ground in 6.0 seconds. This follows from t = (2H/g)1/2. Likewise, the Towers fall very rapidly to the ground, with the upper part falling nearly as rapidly as ejected debris which provide free-fall references (http://911research.wtc7.net/wtc/analysis/proofs/speed.html; Griffin, 2004, chapter 2). Where is the delay that must be expected due to conservation of momentum — one of the foundational Laws of Physics? That is, as upper-falling floors strike lower floors — and intact steel support columns — the fall must be significantly impeded by the impacted mass. If the central support columns remained standing, then the effective resistive mass would be less, but this is not the case — somehow the enormous support columns failed/disintegrated along with the falling floor pans.

How do the upper floors fall so quickly, then, and still conserve momentum in the collapsing buildings? The contradiction is ignored by FEMA, NIST and 9-11 Commission reports where conservation of momentum and the fall times were not analyzed. The paradox is easily resolved by the explosive demolition hypothesis, whereby explosives quickly remove lower-floor material including steel support columns and allow near free-fall-speed collapses (Harris, 2000).

And these explosives also readily account for the turning of the falling Towers to fine dust as the collapse ensues. Rather than a piling up with shattering of concrete as we might expect from non-explosive-caused progressive collapse (“official theory”), we find that most of the Towers material (concrete, carpet, steel, etc.) is converted to flour-like powder WHILE the buildings are falling. The Towers’ collapses are not a typical implosions, but quite possibly series of “shock-and-awe” explosions — at least the evidence points strongly in this direction. The hypothesis ought to be explored further.

Those who wish to preserve as inviolate fundamental physical laws may wish to take a closer look. Consider the collapse of the South WTC Tower on 9-11: http://www.911research.com/wtc/evidence/videos/docs/south_tower_collapse.mpeg

Top ~ 34 floors of South Tower topple over.

What happens to the block and its angular momentum?

We observe that approximately 34 upper floors begin to rotate as a block, to the south and east. They begin to topple over, as favored by the Second Law of Thermodynamics. The torque due to gravity on this block is enormous, as is its angular momentum. But then — and this I'm still puzzling over — this block turned mostly to powder in mid-air! How can we understand this strange behavior, without explosives? Remarkable, amazing — and demanding scrutiny since the US government-funded reports failed to analyze this phenomenon. But, of course, the Final NIST 9-11 report "does not actually include the structural behavior of the tower after the conditions for collapse initiation were reached." (NIST, 2005, p. 80, fn. 1; emphasis added.)

Indeed, if we seek the truth of the matter, we must NOT ignore the data to be observed during the actual collapses of the towers, as the NIST team admits they did. But why did they do such a non-scientific procedure as to ignore highly-relevant data? The business smacks of political constraints on what was supposed to be an "open and thorough" investigation. (See Mooney, 2005.)

So I with others call for an open and thorough investigation. I hope the international community will rise to the challenge. The field is wide open for considering the alternative hypothesis outlined here, due to its neglect by studies funded by the US government.

15. Finally, and by way of review, we consider the variations and inconsistencies in the fire/damaged-caused collapse models with time. The earliest model, promoted by various media sources, was that the fires in the towers were sufficiently hot to actually melt the steel in the buildings, thus causing their collapse. For example, Chris Wise in a BBC piece spouted out false notions with great gusto

"It was the fire that killed the buildings. There's nothing on earth that could survive those temperatures with that amount of fuel burning… The columns would have melted, the floors would have melted and eventually they would have collapsed one on top of the other." (quoted in Paul and Hoffman, 2004, p. 25)

But as we have seen from later serious studies, the jet fuel burned out within minutes following impact. Recall the statement of expert Dr. Gayle refuting the notion that fires in the WTC buildings were sufficiently hot to melt the steel supports:

Your gut reaction would be the jet fuel is what made the fire so very intense, a lot of people figured that's what melted the steel. Indeed it did not, the steel did not melt. (Field, 2005; emphasis added)

Then we have the model of Bazant and Zhou, which requires the majority of the 47 huge steel columns on a floor of each Tower to reach sustained temperatures of 800oC in order to buckle (not melt) — at the same time. But as we've seen, such temperatures are very difficult to reach while burning office materials, in these connected steel structures where the heat is wicked away by heat transport. (Paul and Hoffman, 2004, p. 26) And then to reach the 800oC at the same time, well, no, this scenario is far too improbable.

So that approach was abandoned by FEMA in the next effort (FEMA, 2002). The FEMA team largely adopted the theory of Dr. Thomas Eager (Eager and Musso,

2001), which was also presented in the NOVA presentation “Why the Towers Fell” (NOVA, 2002). Instead of having the columns fail simultaneously, FEMA has floor pans in the Towers warp due to fires, and the floor connections to the vertical beams break, and these floor pans then fall down onto the floor pans below, initiating “progressive collapse” or pancaking of one floor pan on another. Very simple. But not so fast — what happens to the enormous core columns to which the floors were firmly attached? Why don’t these remain standing like a spindle with the floor pans falling down around them, since the connections are presumed to have broken away? This interconnected steel core is founded on bedrock (Manhattan schist). FEMA does not totally ignore the core:

As the floors collapsed, this left tall freestanding portions of the exterior wall and possibly central core columns. As the unsupported height of these freestanding exterior wall elements increased [no mention of the huge central core anymore!], they buckled at the bolted column splice connections and also collapsed.” (FEMA. 2002; emphasis added)

This approach finally fails to account for the observed collapse of the 47 interconnected core columns which are massive and designed to bear the weight of the buildings, and it has the striking weakness of requiring the connections of the floor pans to the vertical columns to break, both at the core and at the perimeter columns, more or less simultaneously.

That didn’t work out, so NIST goes back to the drawing board. They require that the connections of the floor pans to vertical columns do NOT fail (contrary to FEMA’s model), but rather that the floor pans “pull” with enormous force, sufficient to cause the perimeter columns to significantly pull in, leading to final failure (contrary to objections of ARUP Fire experts, discussed above). Also, NIST constructs a computer model — but realistic cases do not actually lead to building collapse. So they “adjust” inputs until the model finally shows collapse initiation for the most severe cases. The details of these “adjustments” are hidden from us, in their computerized hypotheticals, but “the hypothesis is saved.” NIST also has Underwriters Laboratories construct models of the WTC trusses, but the models withstand all fires in tests and do NOT collapse. (See above for details.)

We are left without a compelling fire/damage model, unless one blindly accepts the NIST computer simulation while ignoring the model fire-tests, which I’m not willing to do. And none of the “official” models outlined above accounts for what happens to the buildings AFTER the building is “poised for collapse”

(NIST, 2005, p. 142) — namely the rapid and symmetrical and complete (no tall-standing central core) collapses. Reports of explosions, heard and seen, are not discussed. And they ignore the squibs seen ejected from floors far from where the jets hit — particularly seen in WTC 7 (where no jet hit at all). Finally, what about that molten metal under the rubble piles of all three WTC skyscrapers?

Remarkably, the explosive demolition hypothesis accounts for all the available data rather easily. The core columns on lower floors are cut using explosives, near-simultaneously, along with explosives detonated up higher so that gravity acting on now-unsupported floors helps bring down the buildings quickly. The collapses are thus symmetrical, rapid and complete, with accompanying squibs — really very standard stuff for demolition experts. Thermite (whose end product is molten iron) used on some of the steel beams readily accounts for the molten metal which then pooled beneath the rubble piles.

I believe this is a straightforward hypothesis, much more probable than the official hypothesis. It deserves scientific scrutiny, beyond what I have been able to outline in this treatise.

CONCLUSIONS

I have called attention to glaring inadequacies in the “final” reports funded by the US government and shown evidences for a likely alternative hypothesis. In particular, the official theory lacks repeatability in that no actual models or buildings (before or since 9-11-01) have been observed to completely collapse due to the proposed fire-based mechanisms. On the other hand, dozens of buildings have been completely and symmetrically demolished through the use of pre-positioned explosives. The “explosive demolition” hypothesis better satisfies tests of repeatability and parsimony and therefore is not “junk science.” It ought to be seriously, scientifically investigated and debated.

A truly independent, international panel would consider all viable hypotheses, including the pre-positioned-explosives theory, guided not by politicized notions and constraints, but rather by observations and calculations, to reach a scientific conclusion. Questioning (preferably under oath) of officials who approved the rapid removal and destruction of the WTC steel beams and columns before they could be properly analyzed — and others as outlined above — should proceed in the United States.

None of the government-funded studies have provided serious analyses of the explosive demolition hypothesis at all. Until the above steps are taken, the case for accusing ill-trained Muslims of causing all the destruction on 9-11-01 is far from compelling. It just does not add up.

And that fact should be of great concern to Americans. (Ryan, 2004). Clearly, we must find out what really caused the WTC skyscrapers to collapse as they did.

To this end, NIST must release the 6,899 photographs and over 300 hours of video recordings — acquired mostly by private parties — which it admits to holding (NIST, 2005, p. 81). In particular, photos and analyses of the molten metal (probably not molten steel) observed in the basements of both Towers and WTC7 need to be brought forth to the international community of scientists and engineers immediately. Therefore, along with others, I call for the release of these and all relevant data for scrutiny by a cross-disciplinary, international team of researchers. The explosive-demolition hypothesis will be considered: all options will be on the table.

AFTERWORD

In writing this paper, I call for a serious investigation of the hypothesis that WTC7 and the Twin Towers were brought down, not just by damage and fires, but through the carefully planned use of explosives. I have presented ample evidence for the explosive-demolition hypothesis, which is testable and falsifiable and yet has not been seriously considered in any of the studies funded by the US government.

Again, there is a notion that something other than Boeing jetliners hit the WTC Towers (see Hoffman, 2005; Chertoff, 2005). Scrutiny of photographs and videos provides compelling evidence that jets did in fact hit these buildings (Hoffman, 2005; Chertoff, 2005). A March 2005 article in Popular Mechanics focuses on poorly-supported claims and proceeds to ridicule the whole “9-11 truth movement” (Chertoff, 2005). Serious replies to this article have already been written (Hoffman, 2005; Baker, 2005; serendipity.li/wot/pop_mech/reply_to_popular_mechanics.htm).

Those espousing weak or untestable claims should realize that they may be damaging the effort to achieve a rational debate of important issues by poisoning the process with "junk science". Likewise, the notion that the "explosive demolition" hypothesis should not be debated since it would imply a "conspiracy theory" departs from good science as well as from numerous historical precedents of empirical conspiracies (Jones, 2005). Scientific inquiry is not or should not be dictated by politics (Mooney, 2005).

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